AIMS AND OBJECTIVES

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The effect of chemical constitution on cholesteric phase is studied by many workers. However, the study is not as exhaustive as on other mesogens. The applications of cholesteric phases in different fields like non-destructive testing and gas chromatography also has created the need for new cholesteric materials.

It was proposed to synthesize mono and dicholesteryl derivatives by using different synthesis strategies and to evaluate the effect of chemical constitution on cholesteric mesophases.

Biphenyl derivatives are very popular mesogens for applications. Many of the mesogens have cyano terminal group. It was thought of interest to synthesize mesogens with biphenyl moiety having nitro terminal group and to study their mesogenic properties.

Chiral nematics and ferroelectric smectic $^{*}C$ mesogens are of great interest due to their applications in recent times. Our school has done pioneer work in establishing the role of amide central linkage on mesomorphism. It was thought of interest to synthesize a chiral mesogenic homologous series with amido group as one of the central linkages and explore the possibility of obtaining chiral nematic phases (cholesteric phases) and chiral smectic $^{*}C$ phases.

Earlier, our school had reported fluorescent polymers exhibiting mesomorphic behaviour. The solid-

mesomorphic transition temperatures were much higher. In the present study it was proposed to increase the flexibility of the polymer backbone, with a view to obtain relatively lower solid-mesomorphic transition temperatures. Fluorescent polymers have good potential for applications. The flexibility will be increased by introducing "oxyethylene" spacers in the chain.

A few odd-chemical structure will be tried to explore the possibility of exhibition of mesomorphism in such compounds to encompass more structural variations in exhibition of mesomorphism.